University of Toronto, Department of Electrical and Computer Engineering

ECE241F - Digital Systems - Project

Fall 1997 S. Brown, J. Rose

The Task

The project is intended to allow you to express your creativity in the use of what you have learned so far in this course.

You are to design and implement a 3-week project of your own choosing that uses digital logic in some creative way. You may use any of the parts available in the lab, but are restricted to using just one of the Altera boards. If you wish, you may use the Altera Flex 10K20 on the board, as well as the Max 7128. An important part of this lab is the creativity required to think up an interesting project, and then negotiate with a TA or instructor as to the final form of the project.

Before the First Project lab

You submit hand in a one-page project proposal of what your project is about. This should be a short description that gives:

- The basic idea of the project, and the basic function of your circuit.
- Describe the inputs and outputs, and give a simple block diagrams describing how the various parts of your circuit interact.
- Your plan of action for each of the three lab periods - ``milestones''

Present this to a TA or instructor to get their opinion on whether the project is viable. Once approved, you should get their signature. This is just a check to make sure that you do not try something overly ambitious.

At the first project lab, you *must* be prepared to begin implementing your project. Your marks for the first lab period will be based on the level of preparation you have done -- you must have circuits and schematics ready to be built.

Written Report

You will be required to hand in a written report describing your project, which is due **Tuesday December 2rd, at 5pm** in Room Pratt 484. The report should have a **maximum of 1500 words** and contain the following sections:

- Introduction/Motivation - what you're doing and why.
- A description of the design, in both illustrations (block diagram) and words. This should be a well-written easy-to-read document!
- A description of the working/not working status of the project. If it did not work, indicate the reasons why you think it didn't work.
- Indicate what you would do differently if your were to start the project over again. What did you learn?

INCLUDE as appendices: your design files (graphic design files and VHDL files) as well as any simulation output files that illustrate the working of your project.

The project accounts for 10% of your overall grade. This will be a total of 35 marks broken down in the following way:

Progress/1st Lab Prep in each of the 3 lab project periods, a mark out of 5. The mark for the first period will be based on the quality of the preparation - you must come with one periods worth of work to do in the lab, using the lab facilities. You shouldn't be doing design work here, but implementation.

Report/Technical Quality A grade out of 10 on how good your design is. Did you choose a reasonable implementation or did you come up with a complicated solution? Have you taken a good design approach, considering partitioning and hierarchy? How well does it work?

Report/Writing Quality A grade out of 10 on the quality of the written document. In industry, good technical work usually goes un-noticed unless it is documented well.